

## System Performance Measures

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### Mobility and Accessibility Performance Measures June 21, 2007

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### Today we will...

- Present preliminary mobility and accessibility results for the 2003 Base Year and 2035 Baseline models
- Last time, we summarized performance measures used in the 2004 RTP
- We are still examining freeway and arterial bottlenecks for the new model including the feedback we received from the TAC

## Review: Performance measures communicated the overall performance of the 2004 RTP



Performance Indicator	Performance Measure(s)	Definition	Performance Outcome
Mobility	• Average Daily Speed	Speed - experienced by travelers regardless of mode	10% improvement
	• Average Daily Delay	Delay - excess travel time resulting from the difference between a reference speed and actual speed. Total daily delay and daily delay per capita are the indicators used.	40% improvement
Accessibility	• Percent PM peak period work trips within 45 minutes of home		Auto: 90% Transit: 37%
	• Distribution of work trip travel times		Auto: 8% improvement Transit: 8% improvement
Reliability	• Percent variation in travel time	Day-to-day change in travel times experienced by travelers. Variability results from accidents, weather, road closures, system problems and other non-recurrent conditions.	10% improvement
Safety	• Accident Rates	Measured in accidents per million vehicle miles by mode.	0.3% improvement
Cost-Effectiveness	• Benefit-to-Cost (B/C) Ratio	Ratio of benefits of RTP investments to the associated investment costs.	\$3.08

## Review: Performance measures communicated overall performance... continued



Performance Indicator	Performance Measure(s)	Definition	Performance Outcome
Productivity	• Percent capacity utilized during peak conditions	Transportation infrastructure capacity and services provided. • Roadway Capacity - vehicles per hour per lane by type of facility. • Transit Capacity - seating capacity utilized by mode.	20% improvement at known bottlenecks N/A
Sustainability	• Total cost per capita to sustain current system performance	Focus is on overall performance, including infrastructure condition. Preservation measure is a subset of sustainability.	\$20 per capita, primarily in preservation costs
Preservation	• Maintenance cost per capita to preserve system at base year conditions	Focus is on infrastructure condition. Subset of sustainability.	Maintain current conditions
Environmental	• Emissions generated by travel	Measured/forecast emissions include CO, NOX, PM <sub>10</sub> , SOX and VOC. CO <sub>2</sub> as secondary measure to reflect greenhouse emissions.	Meets conformity requirements
Environmental Justice	• Expenditures by quintile and ethnicity	Proportionate share of expenditure in the 2004 RTP by each quintile	No disproportionate impact to any group or quintile
	• Benefit vs. burden by quintiles	Proportionate share of benefits to each quintile ethnicity Proportionate share of additional airport noise by ethnic group	

Note: Performance Outcomes are estimated for the Plan as a whole in 2030 and not on a project-by-project basis.

## Mobility is measured by speeds, delay, and delay per capita

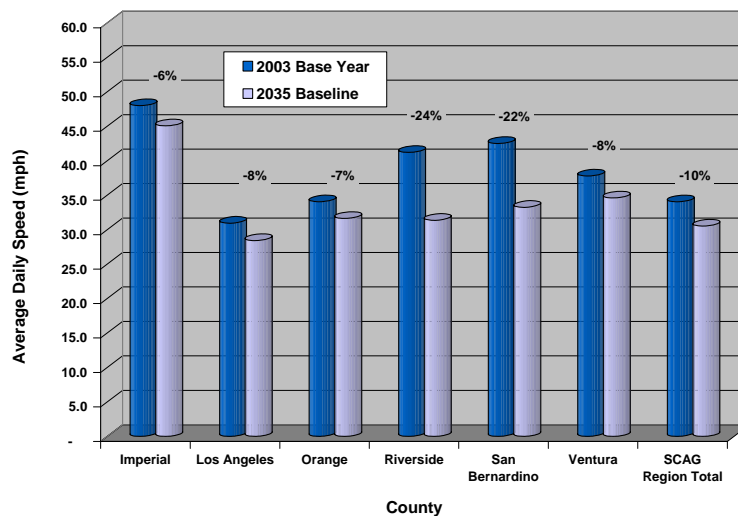


- **Speeds** are the average system speeds measured by daily Vehicle-Miles Traveled/Vehicle-Hours Traveled (VMT/VHT)
  - These values come directly from the travel demand model
- **Delay** is measured as the daily person hours of delay
  - This value is derived from auto + truck vehicle-hours of delay multiplied by average daily vehicle occupancies
- **Delay per capita** is the person hours of delay normalized by the county and regional population estimates/forecasts from the Department of Finance
  - Though not a perfect measure of the delay experienced by the public (e.g., some people do not travel during the day), it is a proxy for how well the region is managing delay given population growth

4

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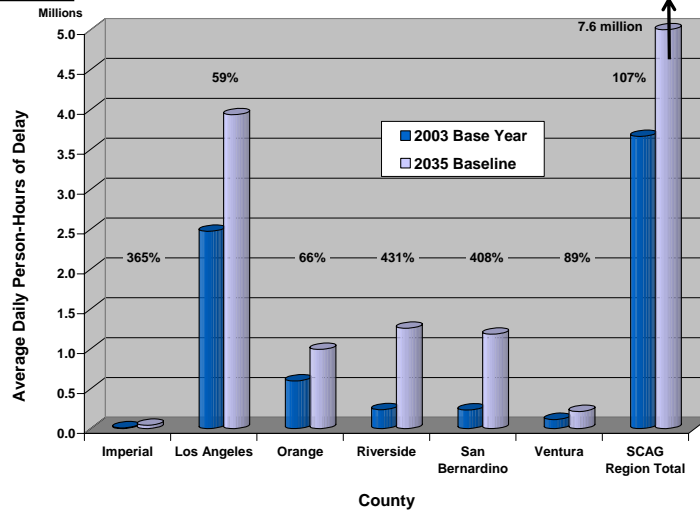
## Mobility: Speeds are projected to decline between 7% and 24% between 2003 and 2035 with a regional decline of 10%...



5

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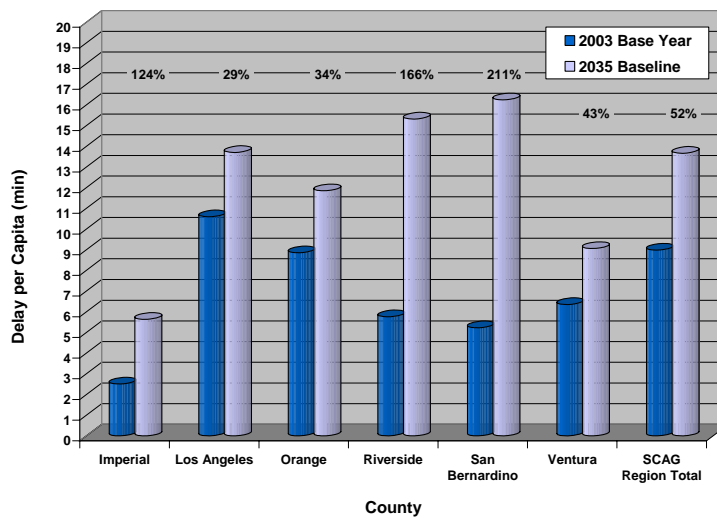
**Mobility: Daily Person Hours of Delay doubles for the region, and increases by more than 5x for some counties...**



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6

**Mobility: Person Hours of Delay per Capita also grows substantially – increasing by more than 50% regionwide...**



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7

Accessibility is measured as the percent of PM Peak Period work trips within 45 minutes and the distribution of those trips

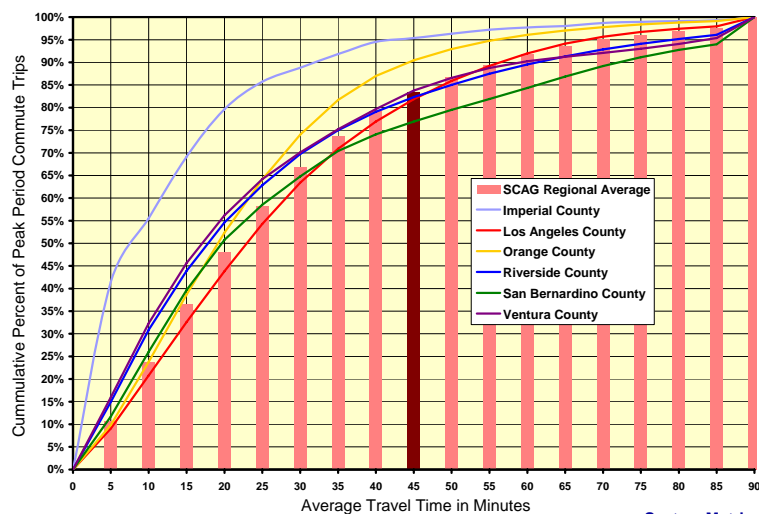


- We have these results for both auto home-based work (HBW) trips and for peak period transit trips
- This year's RTP includes Imperial County trips
- Auto PM Peak Period HBW trips
  - Between 2003 and 2035 the percent within 45 minutes does not change significantly from around 82%
- Transit peak period trips
  - Last RTP we were provided AM peak period transit trips, but for this update, we are given total peak period
  - Between 2003 and 2035 the percent within 45 minutes drops from 55% to around 45%

8

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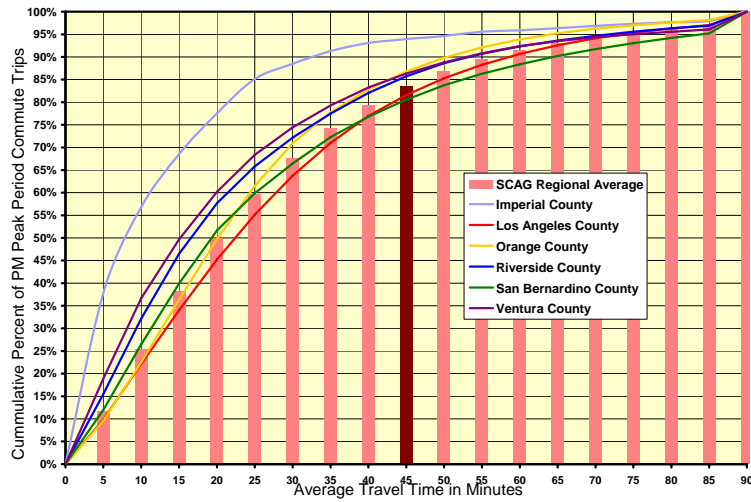
### Accessibility (Auto): 2003 PM Peak Period Auto HBW Trip Cumulative Distribution



9

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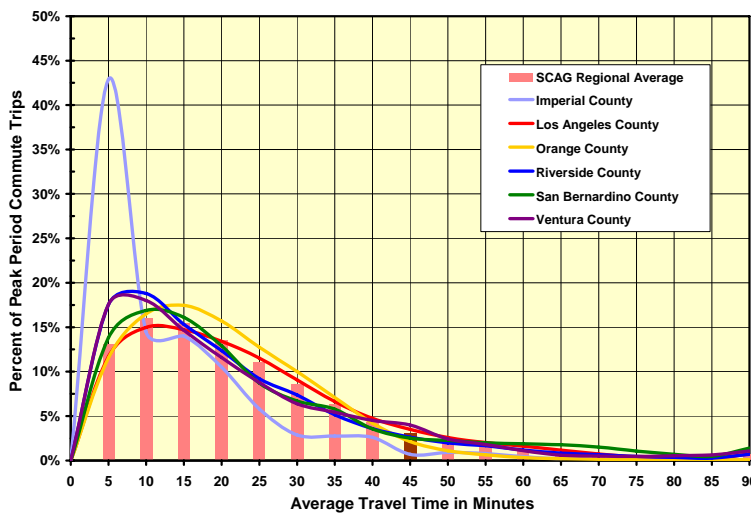
## Accessibility (Auto): 2035 PM Peak Period Auto HBW Trip Cumulative Distribution



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10

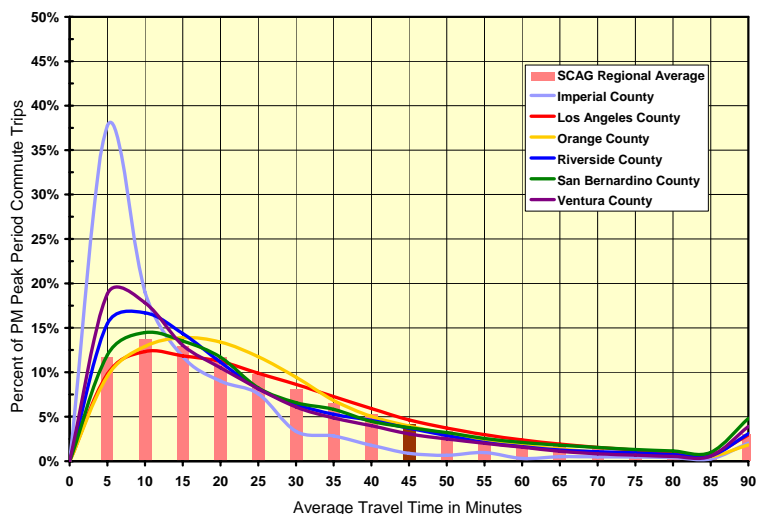
## Accessibility (Auto): 2003 PM Peak Period HBW Trip Distribution



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11

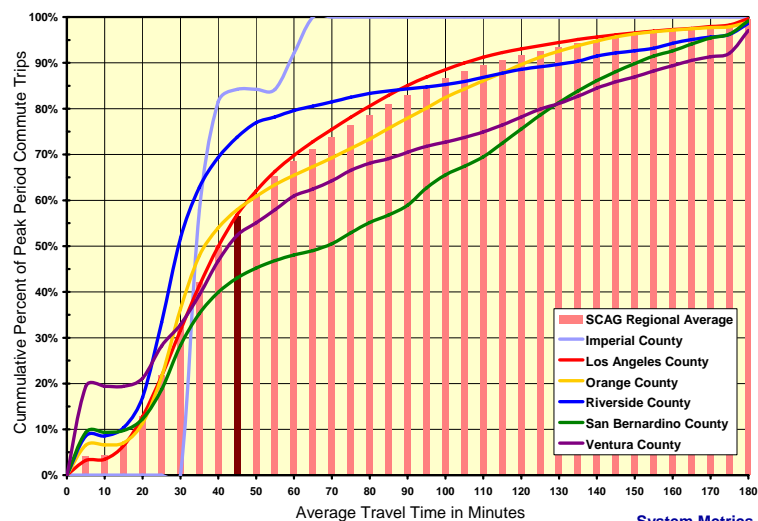
## Accessibility (Auto): 2035 PM Peak Period HBW Trip Distribution



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12

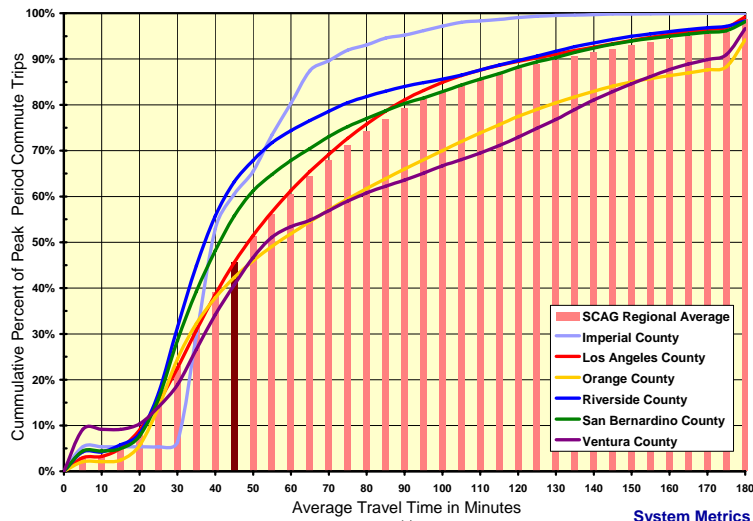
## Accessibility (Transit): 2003 Peak Period Trip Cumulative Distribution



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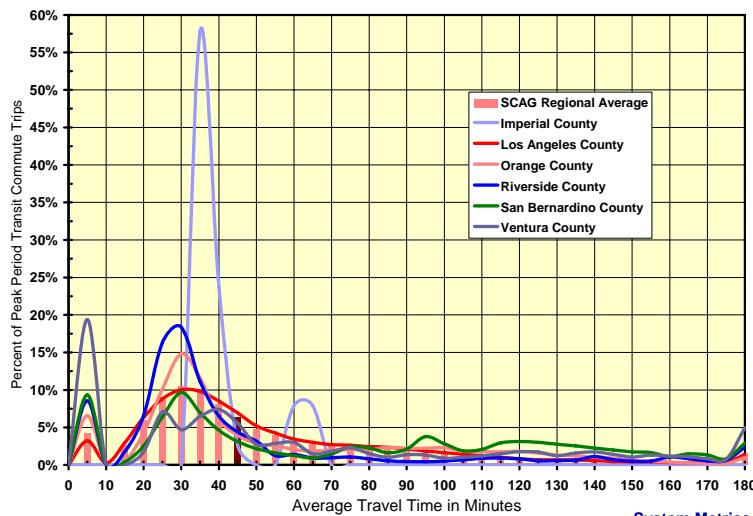
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## Accessibility (Transit): 2035 Peak Period Trip Cumulative Distribution



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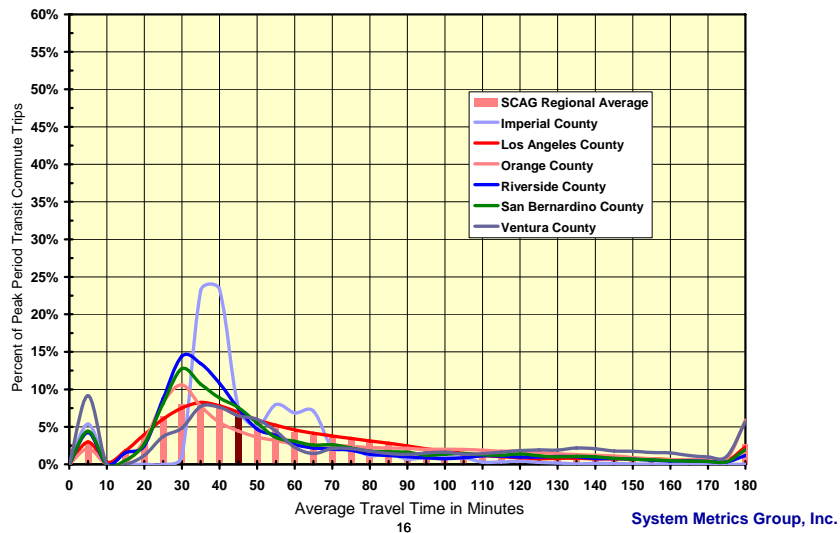
## Accessibility (Transit): 2003 Peak Period Trips Distribution



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## Accessibility (Transit): 2035 Peak Period Trips Distribution



## Performance indicators not discussed in this presentation ...



- Discussed at prior meetings
  - Variability of travel time
  - Productivity
  - Preservation
  - Safety
- To be discussed at future meetings
  - Cost effectiveness (Benefit/cost) will be developed for the full Plan
  - Sustainability will be computed in terms of costs per capita to maintain current conditions
  - Environmental will be reported in terms of meeting conformity requirements

## Summary

- For model-based computations, 2003 Base Year performance measures show worsening conditions compared to the 2000 Base Year used for the 2004 RTP
- Many of these changes could be caused by the model enhancements implemented by SCAG
  - Transit accessibility has additional travel time information included in this year's model for wait times

## Questions?